CLAIMS

1. A voltage isolation buffer, comprising:
a pilot channel comprising a first Hall effect element; and
a data channel comprising a second Hall effect element;
wherein the pilot channel is operatively coupled to the data channel.

2. The voltage isolation buffer of claim 1, wherein the pilot channel is AC coupled.

3. The voltage isolation buffer of claim 2, wherein the data channel is DC coupled.

4. The voltage isolation buffer of claim 3, further comprising a means for calibration operatively coupled to the second Hall effect element.

5. The voltage isolation buffer of claim 4, wherein the means for calibration is operatively coupled to the first Hall effect element.

6. The voltage isolation buffer of claim 5, wherein the means for calibration is configurable to receive information from the first Hall effect element.

7. The voltage isolation buffer of claim 6, wherein the means for calibration is configurable to calibrate the voltage generated by the second Hall effect element based on the information from the first Hall effect element.

8. The voltage isolation buffer of claim 4, wherein the pilot channel further comprises a first comparator operatively coupled to the means for calibration.

9. The voltage isolation buffer of claim 8, wherein the pilot channel further comprises a band-pass filter operatively coupled to the first comparator.

10. The voltage isolation buffer of claim 9, wherein the pilot channel further comprises an amplifier operatively coupled to the band-pass filter.

11. The voltage isolation buffer of claim 8, wherein the data channel further comprises a second comparator operatively coupled to the means for calibration.

12. The voltage isolation buffer of claim 3, wherein the first Hall effect element is composed of semiconductive material.

13. The voltage isolation buffer of claim 12, wherein the first Hall effect element is composed of silicon.

14. The voltage isolation buffer of claim 3, wherein the second Hall effect element is composed of semiconductive material.

15. The voltage isolation buffer of claim 14, wherein the second Hall effect element is composed of silicon.

16. A voltage isolation buffer, comprising:

a pilot channel comprising an AC coupled Hall effect sensor; and

a data channel comprising a DC coupled Hall effect sensor, and further comprising a means for calibration operatively coupled to the AC coupled Hall effect sensor;

wherein the voltage isolation buffer allows data to be transmitted across the voltage isolation buffer via a magnetic field; and

wherein the means for calibration is operatively coupled to the DC coupled Hall effect sensor; and

wherein the means for calibration is configurable to receive information from the AC coupled Hall effect sensor; and

wherein the means for calibration is configurable to calibrate the DC coupled Hall effect sensor based on the information from the AC coupled Hall effect sensor.

17. The voltage isolation buffer of claim 16, wherein the pilot channel further comprises a first comparator operatively coupled to the means for calibration.

18. The voltage isolation buffer of claim 17, wherein the pilot channel further comprises a band-pass filter operatively coupled to the first comparator.

19. The voltage isolation buffer of claim 18, wherein the pilot channel further comprises an amplifier operatively coupled to the band-pass filter.

20. The voltage isolation buffer of claim 17, wherein the data channel further comprises a second comparator operatively coupled to the means for calibration.

21. A voltage isolation buffer comprising:

an AC coupled Hall effect sensor;

a plurality of DC coupled Hall effect sensors; and

a means for calibration;

wherein the AC coupled Hall effect sensor is operatively coupled to the means for calibration; and

wherein each DC coupled Hall effect sensor is operatively coupled to the means for calibration.

22. A system for transmitting data across a voltage isolation barrier via a magnetic field, the system comprising:

a first pilot channel comprising an AC coupled Hall effect sensor; and

a plurality of data channels, wherein each data channel comprises a DC coupled Hall effect sensor, and further comprising a means for calibration operatively coupled to the AC coupled Hall effect sensor;

wherein the means for calibration is operatively coupled to each DC coupled Hall effect sensor; and

wherein the means for calibration is configurable to receive information from the AC coupled Hall effect sensor; and

wherein the means for calibration is configurable to calibrate each DC coupled Hall effect sensor based on the information from the AC coupled Hall effect sensor.

23. An integrated circuit comprising:

an AC coupled Hall effect sensor; and

a DC coupled Hall effect sensor;

wherein the AC coupled Hall effect sensor is coupled to the DC coupled Hall effect sensor.

24. The integrated circuit of claim 23 further comprising a means for calibration coupled to the DC coupled Hall effect sensor.

25. A bi-directional voltage isolation buffer comprising:

a first integrated circuit; and

a second integrated circuit adjacent to the first integrated circuit;

wherein the first integrated circuit comprises a first AC coupled Hall effect sensor;

wherein the first integrated circuit comprises a first DC coupled Hall effect sensor;

wherein the second integrated circuit comprises a second AC coupled Hall effect sensor; and

wherein the second integrated circuit comprises a second DC coupled Hall effect sensor.

26. The bi-directional voltage isolation buffer of claim 25, wherein the first integrated circuit comprises a means for calibration operatively coupled to the first AC coupled Hall effect sensor.

27. The bi-directional voltage isolation buffer of claim 26, wherein the means for calibration is configurable to calibrate the first DC coupled Hall effect sensor based on information from the first AC coupled Hall effect sensor.

28. The bi-directional voltage isolation buffer of claim 25, wherein the second integrated circuit comprises a means for calibration operatively coupled to the second AC coupled Hall effect sensor.

29. The bi-directional voltage isolation buffer of claim 28, wherein the means for calibration is configurable to calibrate the second DC coupled Hall effect sensor based on information from the second AC coupled Hall effect sensor.

30. The bi-directional voltage isolation buffer of claim 25, wherein the first integrated circuit comprises a third DC coupled Hall effect sensor.

31. The bi-directional voltage isolation buffer of claim 25, wherein the second integrated circuit comprises a third DC coupled Hall effect sensor.

32. A method for transmitting data across a voltage isolation barrier, the method comprising the steps of:

generating a first Hall voltage signal;

AC coupling the first Hall voltage signal;

generating a second Hall voltage signal;

DC coupling the second Hall voltage signal; and

calibrating the second Hall voltage signal;

wherein the step of calibrating is controlled by the first Hall voltage signal.

33. The method of claim 32, further comprising the step of amplifying the first Hall voltage signal.

34. The method of claim 32, further comprising the step of amplifying the second Hall voltage signal.

35. The method of claim 32, further comprising the step of converting the first Hall voltage signal from an analog signal to a digital signal.

36. The method of claim 32, further comprising the step of converting the second Hall voltage signal from an analog signal to a digital signal.